

Preliminary Amendment dated April 19, 2004  
U.S. Application No. 09/738,614  
Attorney Docket No. MDS-013A

### **Amendments to the Claims**

The following listing of claims will replace all prior versions and listings of claims in the application.

### **Listing of Claims**

Claim 1 (withdrawn) A method for monitoring effects of chemical agents on a sample, the method comprising the steps of:

dispensing a plurality of chemical agents on a sample, wherein said chemical agents interact to alter an optical signal produced by said sample, and measuring said altered optical signal.

Claim 2 (withdrawn) The method of claim 1, wherein said chemical agents interact to produce an additive effect on said optical signal.

Claim 3 (withdrawn) The method of claim 1, wherein said chemical agents interact to reduce an intensity of said optical signal.

Claim 4 (withdrawn) The method of claim 1, wherein said optical signal is a light spectrum.

Claim 5 (withdrawn) The method of claim 4, wherein said light spectrum is a fluorescent spectrum.

Claim 6 (withdrawn) The method of claim 1, wherein said optical signal is produced by an endogenous chromophore.

Claim 7 (withdrawn) The method of claim 6, wherein said endogenous chromophore is a flourophore.

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Claim 8 (withdrawn) The method of claim 1, wherein said chemical agents are selected from the group consisting of acetic acid, formic acid, propionic acid, butyric acid, Lugol's iodine, Shiller's iodine, methylene blue, toluidine blue, and indigo carmine.

Claim 9 (withdrawn) The method of claim 1, wherein said plurality of chemical agents are dispensed substantially simultaneously.

Claim 10 (withdrawn) The method of claim 1, wherein said chemical agents are dispensed sequentially.

Claim 11 (withdrawn) The method of claim 1, wherein said optical signal is measured over a predetermined time.

Claim 12 (withdrawn) The method of claim 1, wherein at least one member of said plurality of chemical agents alters pH of said sample.

Claim 13 (withdrawn) The method of claim 1, wherein at least one member of said plurality is selected from the group consisting of osmotic agents and ionic agents.

Claim 14 (withdrawn) A method for monitoring effects of chemical agents on a sample, the method comprising the steps of:  
dispensing a chemical agent on a sample, and  
measuring a change in response to said chemical agent in an optical signal from an endogenous chromophore in said sample.

Claim 15 (withdrawn) The method of claim 14, wherein said endogenous chromophore is a flourophore.

Claim 16 (currently amended) A method for monitoring effects of a chemical agent on a sample, the method comprising the steps of:  
dispensing a chemical agent on a sample;

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providing an automated triggering signal to initiate a measurement period relative to said dispensing step, ~~and;~~  
capturing a plurality of sequential images of said sample during said measurement period;  
automatically aligning a subset of said plurality of images to compensate for sample motion; and  
~~measuring a temporal evolution of an optical signal observed from said sample during within said measurement period.~~

Claim 17 (original) The method of claim 16, wherein said triggering signal is provided substantially simultaneously with said dispensing step.

Claim 18 (original) The method of claim 16, wherein said triggering signal is provided after said dispensing step.

Claim 19 (currently amended) The method of claim 16, wherein said measuring step comprises measuring said ~~temporal evolution optical signal~~ at at least one predetermined time relative to said triggering signal.

Claim 20 (currently amended) The method of claim ~~1 or~~ 16, wherein said dispensing step comprises dispensing said chemical agent ~~or agents~~ as a mist in a predefined pattern on said tissue.

Claim 21 (original) The method of claim 20, wherein said pattern is substantially circular.

Claim 22 (original) The method of claim 20, wherein said pattern is substantially annular.

Claim 23 (original) The method of claim 20, wherein said mist is a controlled volume.

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Claim 24 (original) The method of claim 20, wherein said dispensing occurs at a controlled rate.

Claim 25 (withdrawn) A method for monitoring the effects of a chemical agent on a sample, the method comprising the steps of:  
dispensing a chemical agent on a sample,  
capturing a plurality of sequential images of said sample during a measurement period,  
automatically aligning a subset of said plurality of images to spatially correlate said subset, and  
measuring a temporal evolution of an optical signal from said subset of spatially correlated images.

Claim 26 (withdrawn) The method of claim 25, wherein said aligning step comprises aligning said subset to compensate for relative motion between said sample and an optical device.

Claim 27 (withdrawn) The method of claim 25, wherein said aligning step comprises aligning said subset to compensate for relative motion between a first portion of said sample and a second portion of said sample.

Claim 28 (withdrawn) The method of claim 25, wherein said measuring step is performed at predetermined times relative to said dispensing step.

Claim 29 (withdrawn) The method of claim 25, wherein said sample is selected from the group consisting of cervical tissue, skin, colorectal tissue, and gastric tissue.

Claim 30 (withdrawn) The method of claim 1, wherein said optical signal is approximated by a decay function.

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Claim 31 (withdrawn) The method of claim 6 or 14, wherein said endogenous molecule is selected from the group consisting of NADH, collagen, elastin, flavins, hemoglobin, and porphyrins.

Claim 32 (withdrawn) The method of claim 4, wherein said spectrum is produced at least in part by light scattering properties of said tissue.